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Crystal electric field excitations in the non-fermy liquid compound YbRh 2Si 2

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Abstract

We have calculated the crystalline electric field (CEF) splitting of the energy levels of Yb 3+ (4f 13) in the clean Yb-based heavy fermion compound YbRh 2Si 2. The data of inelastic neutron scattering and electron spin resonance measurements in YbRh 2Si 2, together with relevant structural, thermodynamic, and magnetic properties, were used as input in the calculations of the possible CEF level scheme in this non-Fermi-liquid compound. Two possible sets of the CEF parameters with the Γ 6 or Γ 7 ground-state symmetry are discussed.

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Keywords

Crystal field parameters, Heavy-fermion metal, Kramers doublet, YbRh 2Si 2